

NETC PERFORMANCE MODELS AND COST ANALYSIS



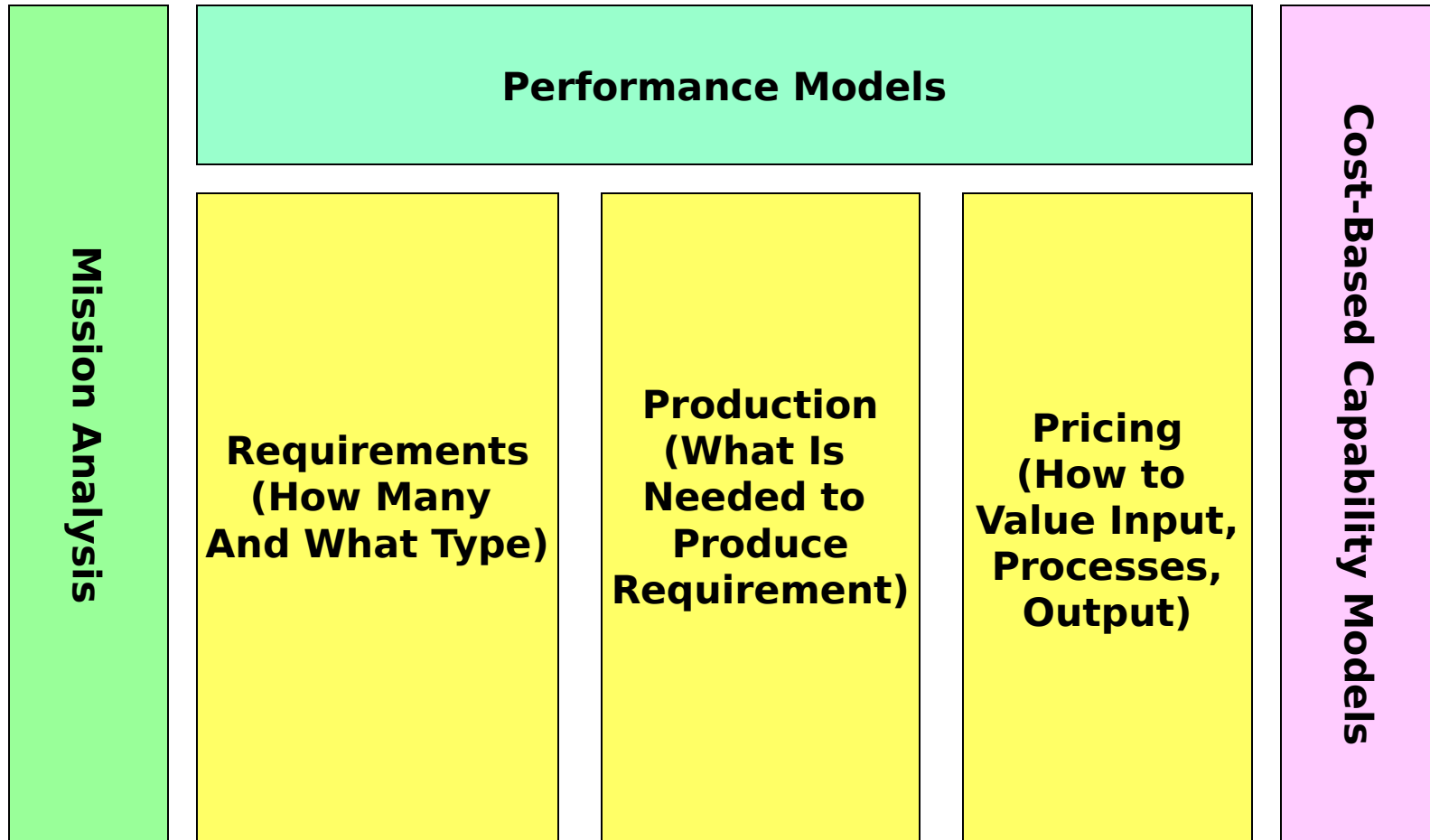
**Presented by
Sarah Aust
NETC N81**

30 March 2004

BACKGROUND

- **Navy Leadership Emphasis (CNO and NETC)**
 - **Buy the Right Level of Readiness at the Right Cost**
 - **Performance-Based Budgeting**
 - **Cost-Capability Models**
 - **NETC Goal 3 (Objectives 3.2 and 3.3)**
- **We Can No Longer Afford**
 - **Costs Growing at the Rate of Inflation**
 - **Train Who They Send Us, Spend What They Give Us**
 - **Readiness at Any Cost**
- **All Programs Will Be Performance-Based by 1 Oct, 2005**
 - **All Performance Models Will Undergo VV&A**

NETC APPROACH

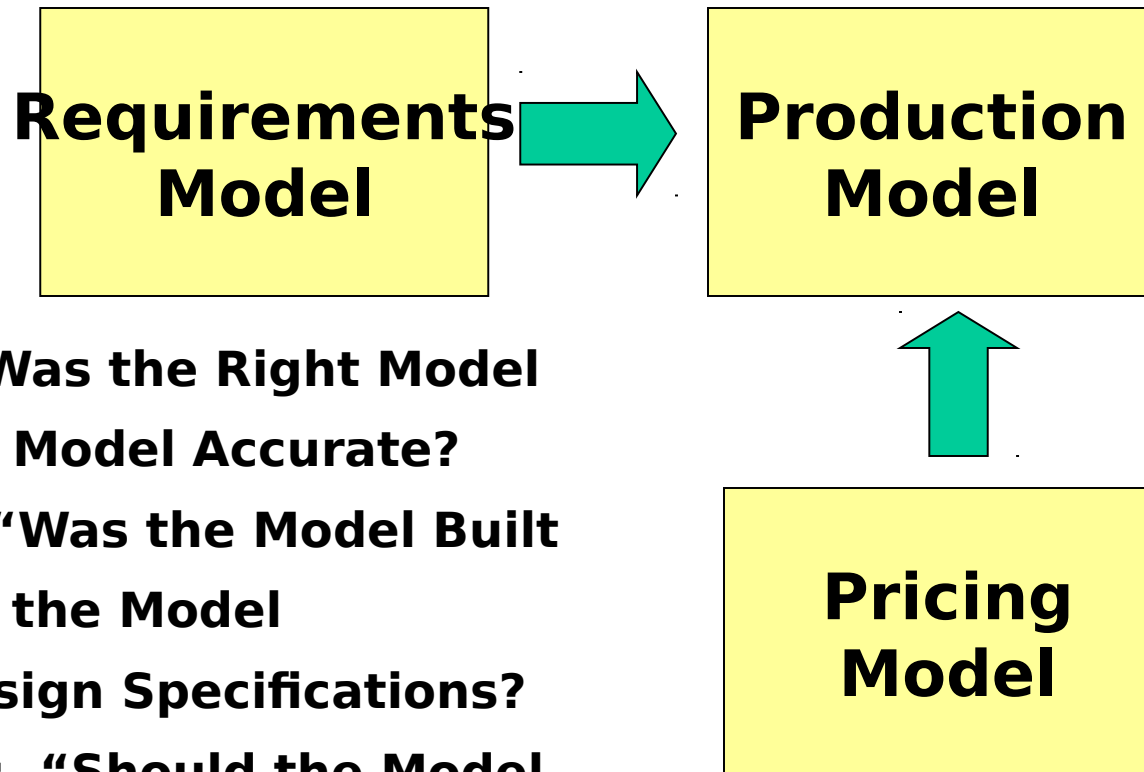


MISSION ANALYSIS

- **Are Requirements Based On Valid Fleet and Navy Needs?**
 - **Fleet Mission Tasking: JMETs, NMETs, and ROC / POE**
 - **Policy: DoD / CJCS / DoN Directives**
 - **Statute: Title 10 U.S. Code**
 - **Strategy: Strategic Planning Documents, Sea Power 21, CNO Guidance**



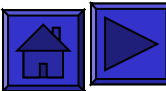
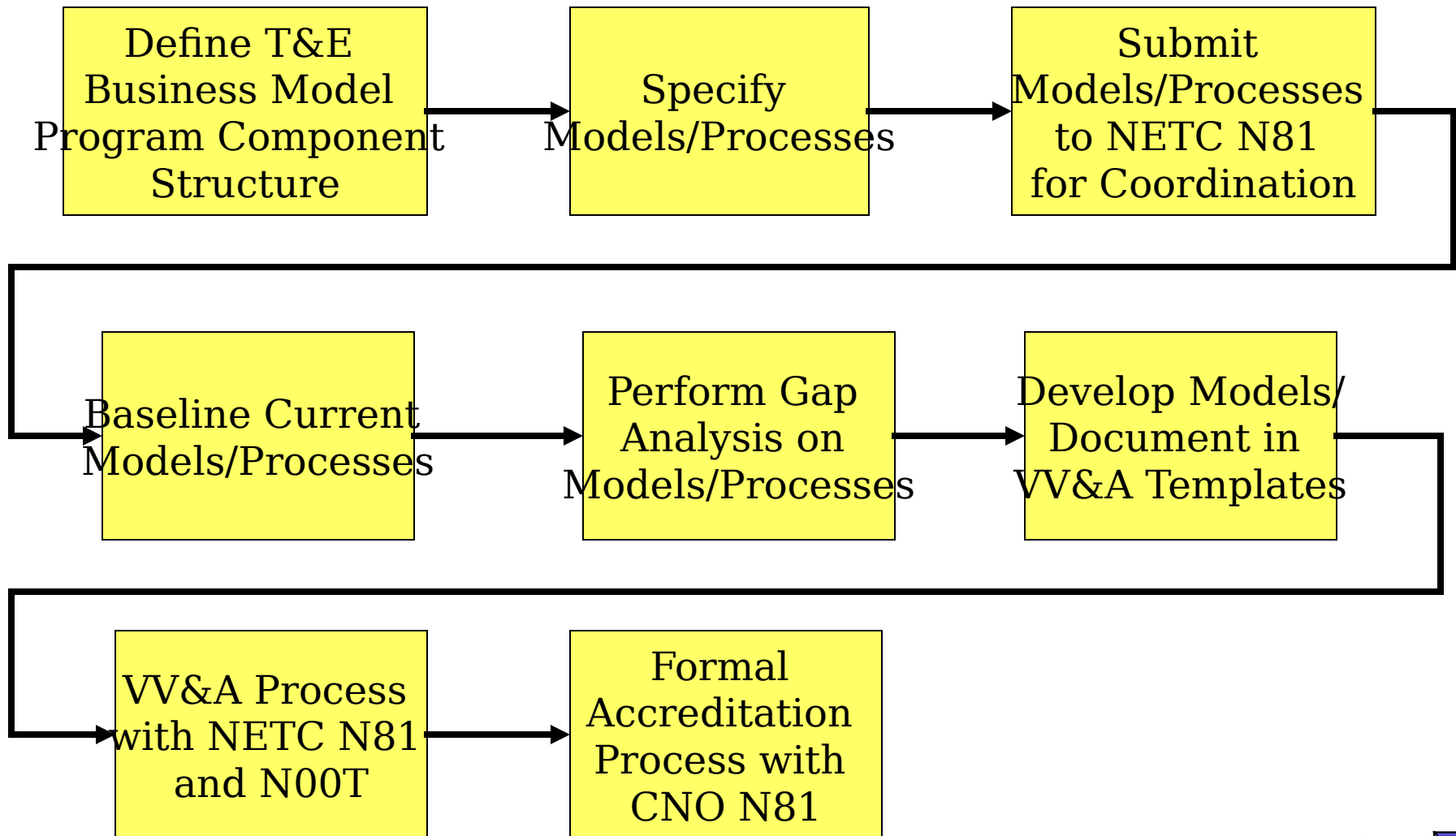
PERFORMANCE MODELS



- **Validation**: “Was the Right Model Built?” Is the Model Accurate?
- **Verification**: “Was the Model Built Right?” Does the Model Represent Design Specifications?
- **Accreditation**: “Should the Model Be Used?” Official Determination That a Model Is Acceptable.

PERFORMANCE MODEL PROCESS

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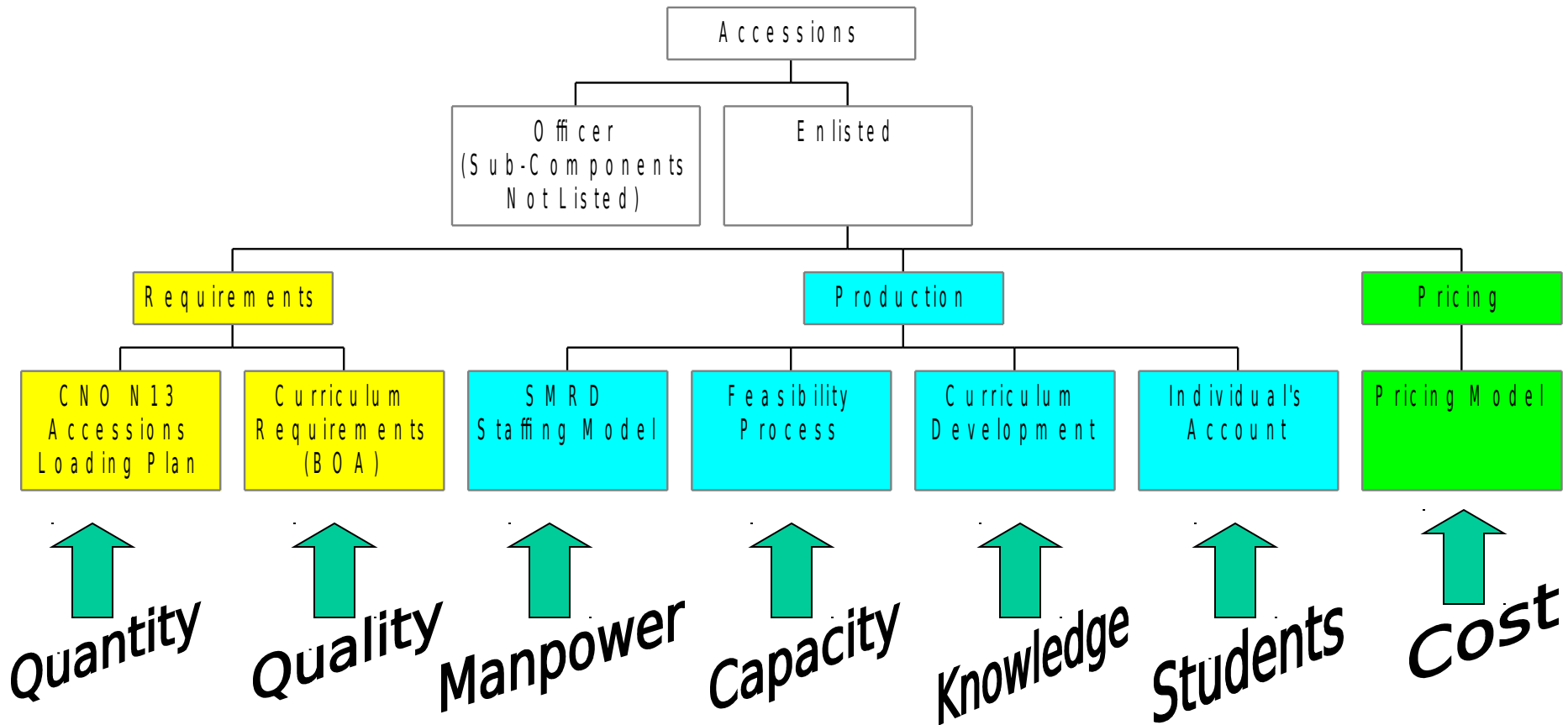


PROGRAM COMPONENT STRUCTURE

Programs	Accession S	Training	Education	Enabling	Other
Program Component s	<ul style="list-style-type: none"> • Officer • Enlisted 	<ul style="list-style-type: none"> • Technical Training 	<ul style="list-style-type: none"> • Professional • Voluntary • Civilian 	<ul style="list-style-type: none"> • IT • Claimant Support • Human Performance 	<ul style="list-style-type: none"> • Recruiting / Advertising • Citizenship Development
Program Sub-Component s	<ul style="list-style-type: none"> • Officer Indoc • Officer Candidate School • ROTC 	<ul style="list-style-type: none"> • Specialized Skills • Flight Training 	<ul style="list-style-type: none"> • Graduate • Other 	<ul style="list-style-type: none"> • System Support • Delivery • Life Cycle Support 	
			<ul style="list-style-type: none"> • Student Support • Tuition • OSD Testing and Snt 	<ul style="list-style-type: none"> • HQ Support • Command /Admin • External Relations 	



ENLISTED ACCESSIONS MODELS/PROCESS



GAP ANALYSIS FRAMEWORK

	Criteria	Rating Scale
Performance Levels	For each program, the model produces costs for at least four performance levels	GREEN: Linked to CNO goals
		YELLOW: CNO goals not yet established
		RED: Not linked to CNO goals
Key Drivers	For each program, key drivers (data, assumptions, and guidance) are credible and subject to review and revision	GREEN: Model has four or more performance levels
		YELLOW: Model has 2 or 3 performance levels
		RED: Model produces only the full
Design	For each program, the model's design (framework, algorithms, data sources and assumptions) accurately reflect the validated concept to produce credible results	GREEN: All data is valid or certified
		YELLOW: Most data traceable to certified sources; data reviewed
		RED: Key drivers are arbitrary or best guess; data not reviewed
Feedback Loop	For each program, a sound feedback mechanism exists to allow for validating the model's accuracy	GREEN: As practicable, all components are modeled
		YELLOW: As practicable, a POA&M is in place to model all LOE components
		RED: No plan exists to ensure all LOE functions are modeled
User Community	For each program, the model is designed and developed for the level of competency for its intended purpose. The model is supported by documents such as user's manual, technical manual, and/or reference guide.	GREEN: The model's design is sound and produces credible results
		YELLOW: The model's design requires some improvements to improve results
		RED: The model's flawed design produces results that are not credible.



MODEL DEVELOPMENT APPROACHES

Industrial Engineering or Bottom-up

- **Manual Processes, spreadsheets, DBs**
- **Easiest approach for current operations**

- **Parametric (statistical)**

- **Requires good data and stable operations**
- **More labor intensive, but provides more forecasting ability**

- **Simulation**

- **When there is high feedback and interdependency between variables**
- **Can be labor intensive, but provides very robust forecasting ability**



PERFORMANCE MODEL VV&A

- **SECNAVINST 5200.40 - VV&A of Models and Simulations**
- **CNO N81 Required VV&A Templates**
 - **Overview: Model Identification - VV&A Roles**
 - **Model Description and Background**
 - **Conceptual Validation: Assumptions, Algorithms and Architecture**
 - **Data Source Description and Confidence Level**
 - **Design Verification Against the Conceptual Model**
 - **System Verification - Formal Test / Review Process Against Functional Design**
 - **Results Validation - Formal Test / Review Process Against Real World Data**
 - **Configuration Management Plan and Model Management**



PERFORMANCE MODEL

Development Schedule

Program	Start Date	To N81
Flight (Requirements)	Jun 03	Dec 03
IA Projection	Dec 03	May 04
Enlisted Accessions	Jan 04	Sep 04
Voluntary Education	Jan 04	Jun 04
Flight (Prod / Pricing)	Feb 04	Dec 04
Initial Skills	Feb 04	Dec 04
IT, HPC and Support	Mar 04	Sep 05
PME	May 04	Mar 05
Officer Accessions	Jun 04	Sep 05
Performance Models Will Cover 99% of NETC Resources		
Functional Skills	Jan 05	Sep 05

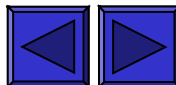


CAPABILITY-BASED COST ANALYSIS

- **Performance Models Drive**

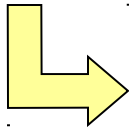
Capability-Based Cost Analysis

- **Determine Where Additional Investment Results in Diminishing ROI or the “Knee” in Curve**
- **Examine Magnitude of Risk With Reduced Investment**
- **Apply Efficiencies to Increase Capability at Reduced Costs**
- **One Program May Support Multiple Capabilities and One Capability May Depend on Multiple Programs**

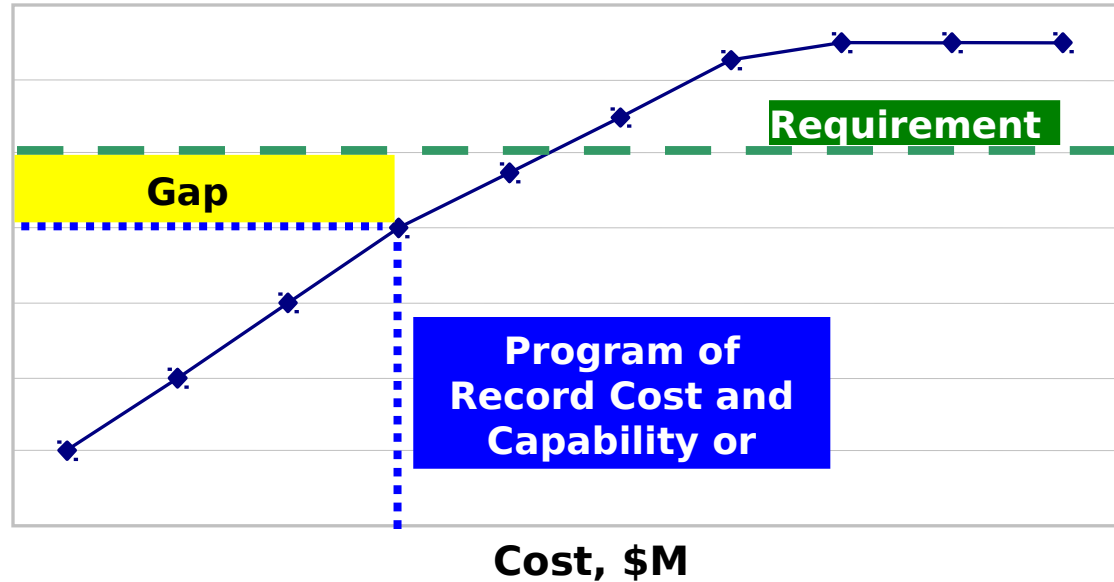


CAPABILITY-BASED COST ANALYSIS

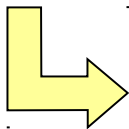
**Example:
Performance View-
Initial Skills Grads**



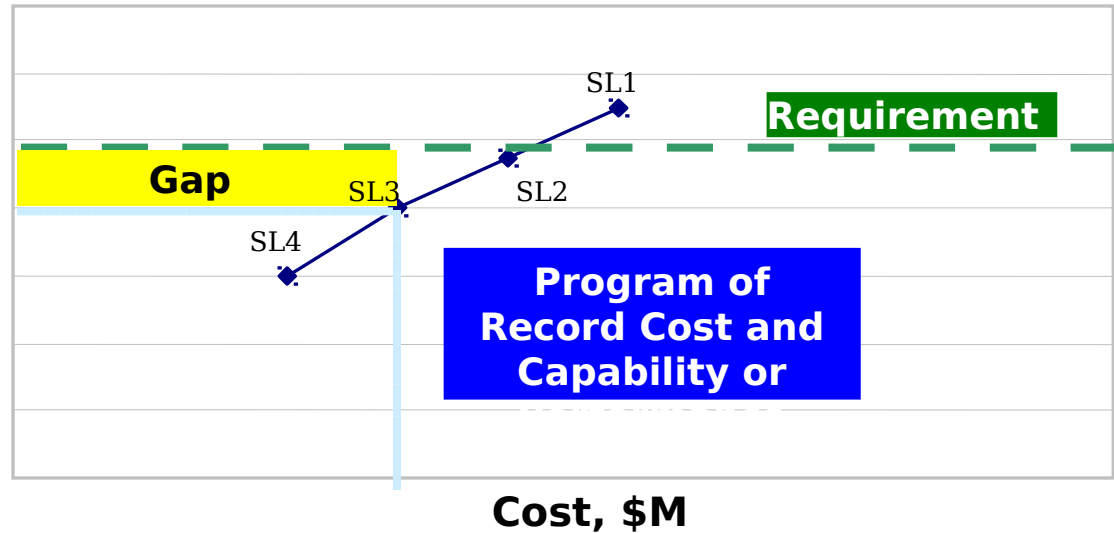
Capability/Performance
Metric



**Example:
Different Levels
of Service**



Capability/Performance
Metric



LESSONS LEARNED

- **Senior leadership schedule is aggressive and requires leverage of current processes/models**
- **Developing Capability “Graphs” provides much insight into current capability**
- **The VV&A templates are designed for quantitative models and do not support processes very well**
- **The VV&A templates are designed for the program level and some parts of the templates do not apply to multiple models within a program**